

The diagram illustrates a speech processing system with the following components and signal flow:

- Speech** (input) splits into two paths:
 - Path 1: **Linear Prediction Analysis** (102) → **LP Parameters** (103) → **Pitch and Voicing Analysis** (104).
 - Path 2: **Pitch and Voicing Analysis** (104).
- Pitch and Voicing Analysis** (104) outputs:
 - Voicing** → **Mode Decision** (108).
 - Pitch** → **Pitch Waveform Analysis** (106).
- Mode Decision** (108) outputs **Mode** to **Quantization** (110).
- Linear Prediction Analysis** (102) outputs **LP Parameters** (103) to **Pitch Waveform Analysis** (106).
- Pitch Waveform Analysis** (106) outputs:
 - Band-pass Voicing** → **Pitch Waveform Analysis** (106).
 - Equal. Filter Coeff.** → **Zero-Phase Equalization** (112).
 - MELP Param.** → **Quantization** (110).
- Quantization** (110) outputs **transmit** and **CELP Param.** (114).
- CELP Param.** (114) is input to **Analysis by Synthesis** (114).
- Analysis by Synthesis** (114) also receives **LP Param.** and **Pitch** as inputs.
- Analysis by Synthesis** (114) outputs **Modified Speech** (112).
- Modified Speech** (112) is input to **Zero-Phase Equalization** (112).

Figure 1: Hybrid encoder (a)

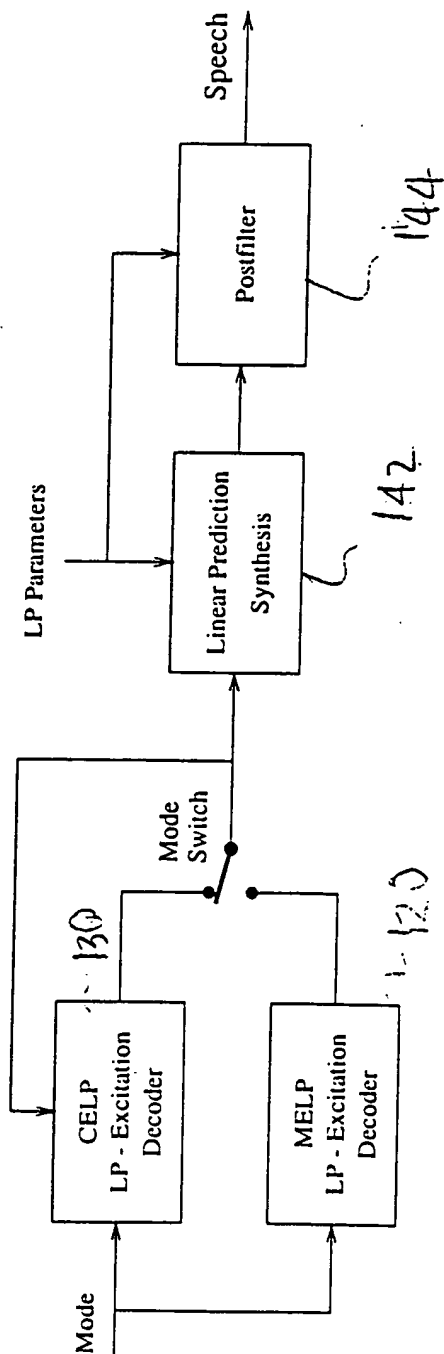


Figure 2: Hybrid decoder

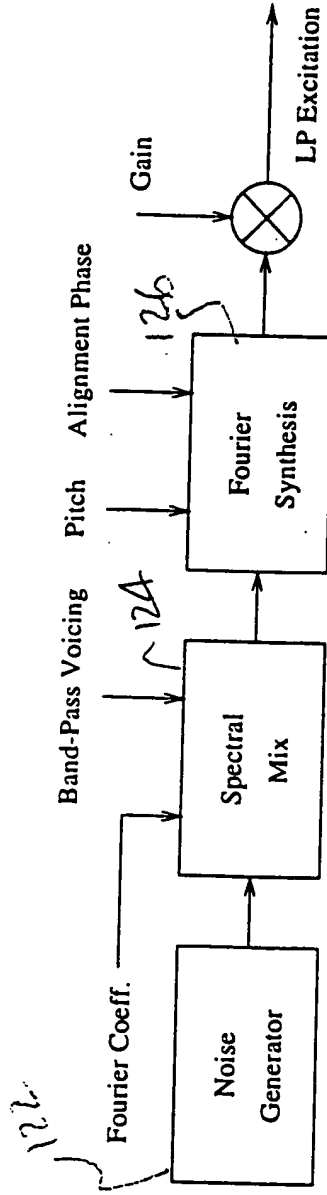


Figure 4: MELP LP-excitation decoder

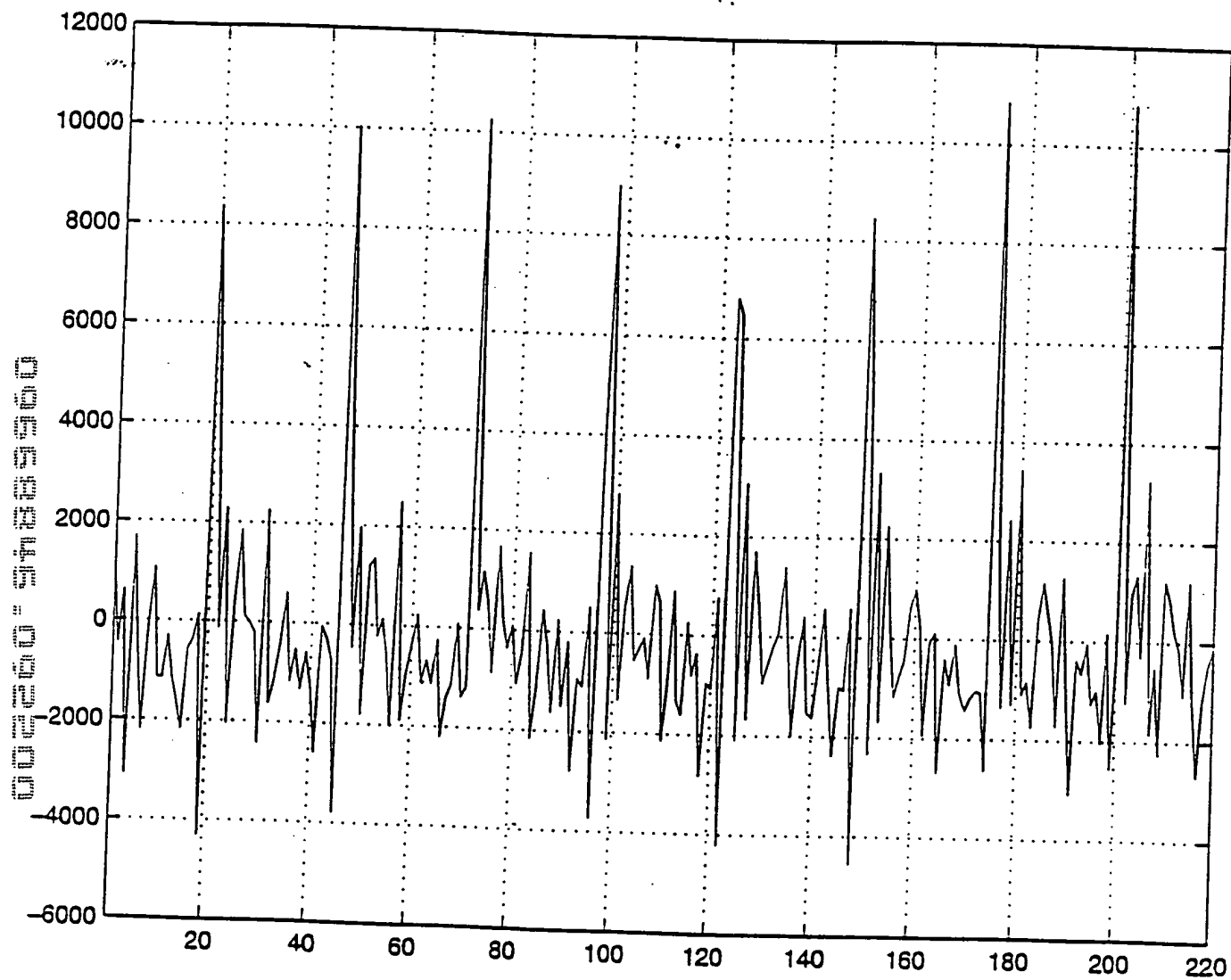


Fig. 2a

002260-94889500

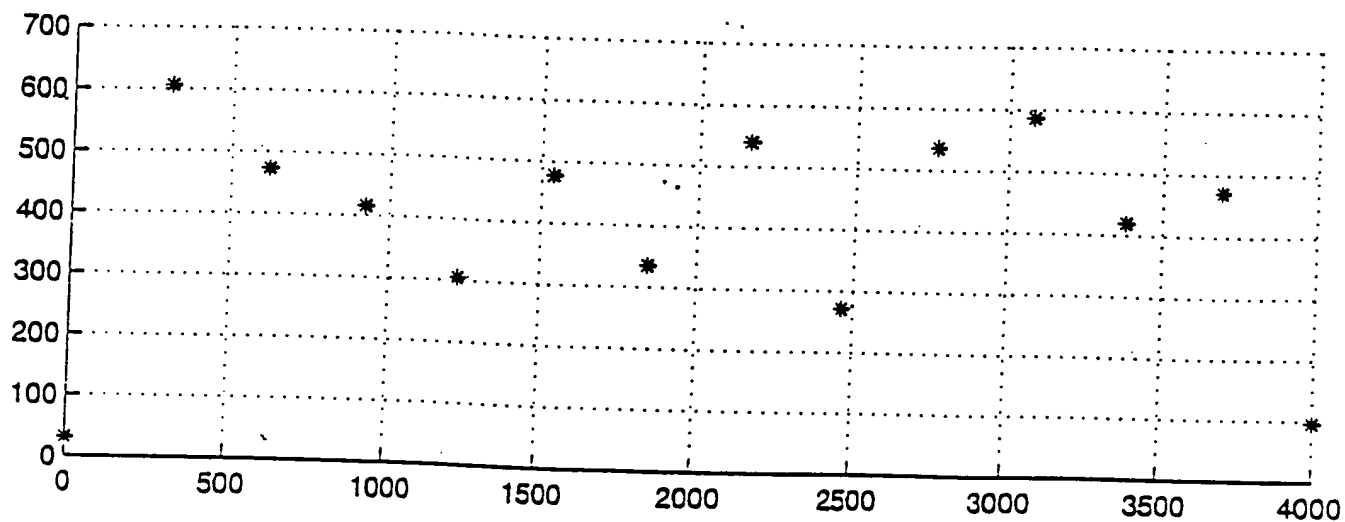


Fig. 2b

002260-9133960

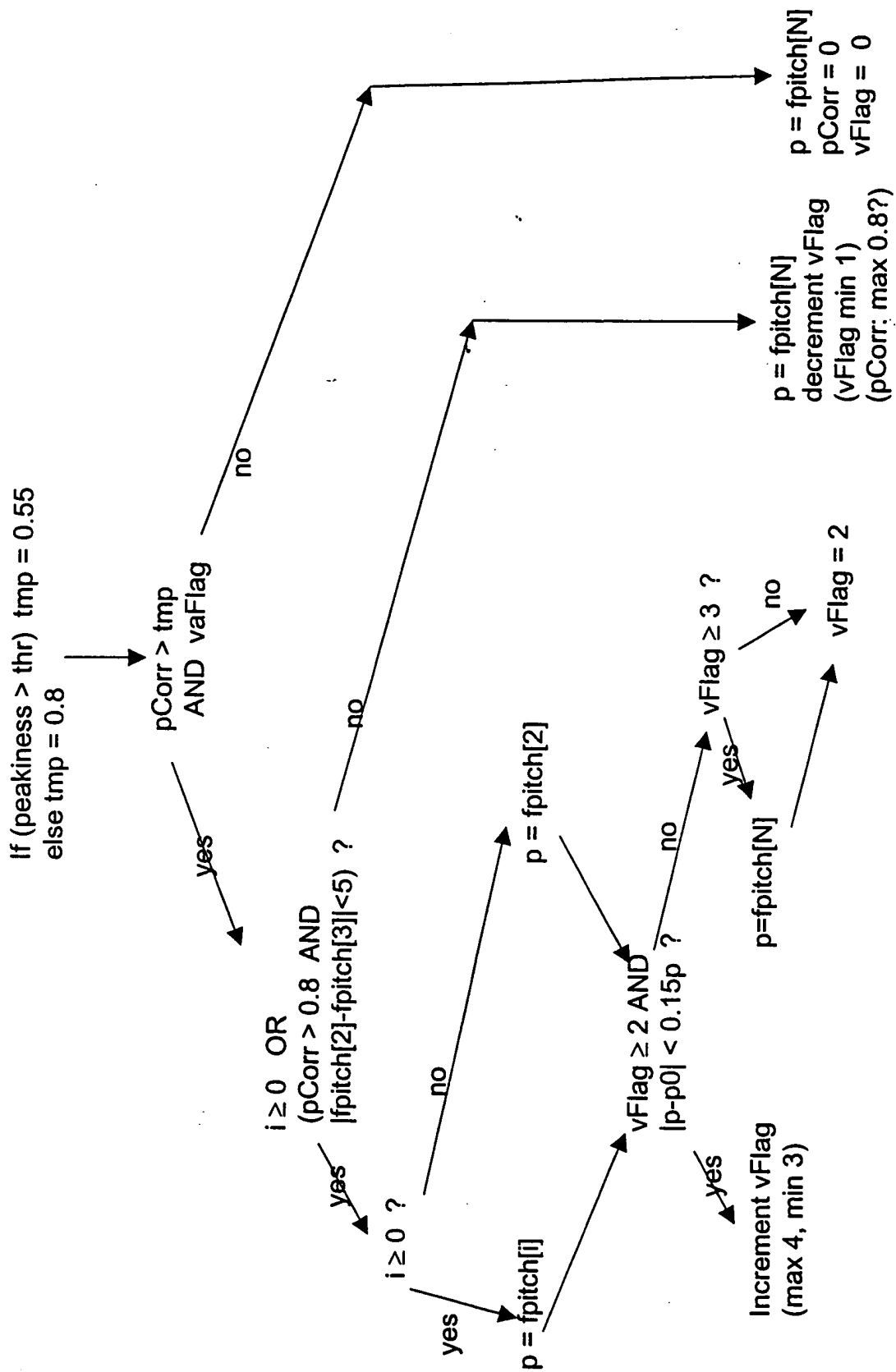


Fig. 3a

00000-9488960

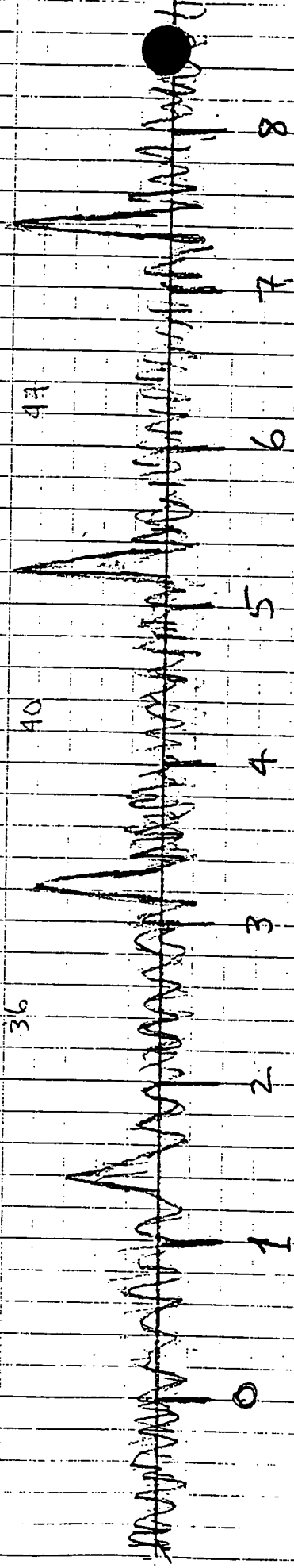
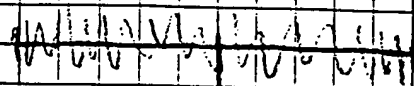
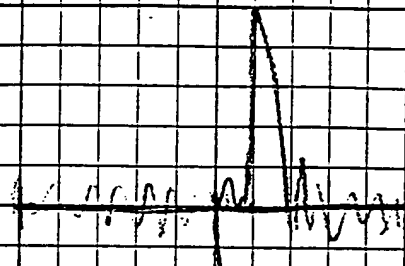


Fig. 4a

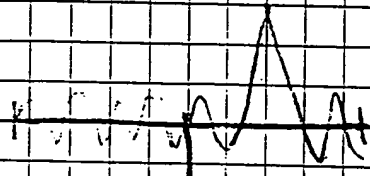
002200" 97839590



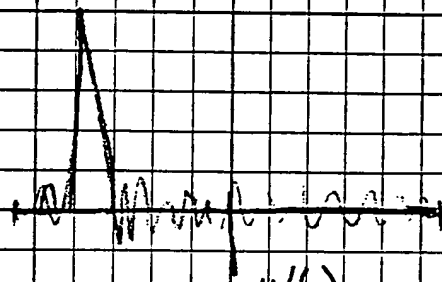
$u(0)$



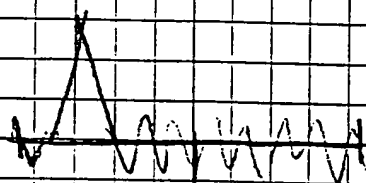
$u(5)$



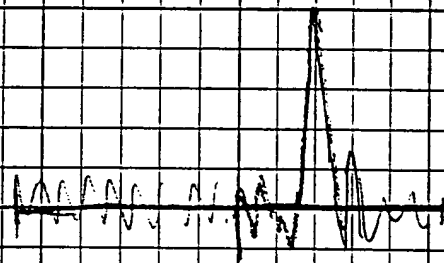
$u(1)$



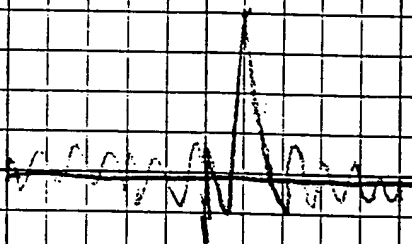
$u(6)$



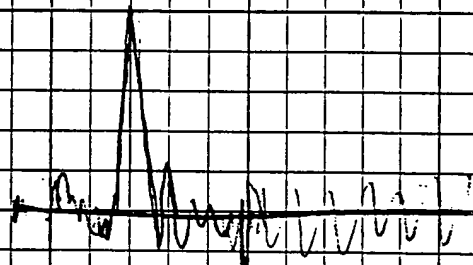
$u(2)$



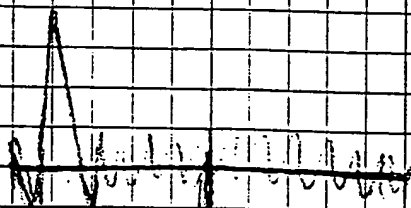
$u(7)$



$u(3)$

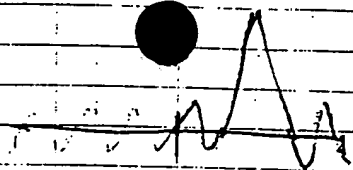


$u(8)$

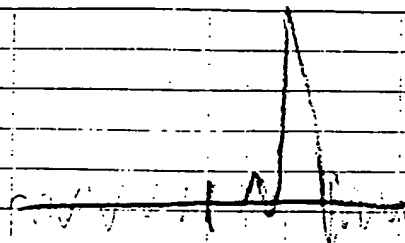


$u(4)$

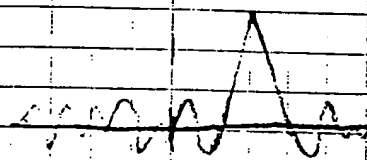
Fig. 4b



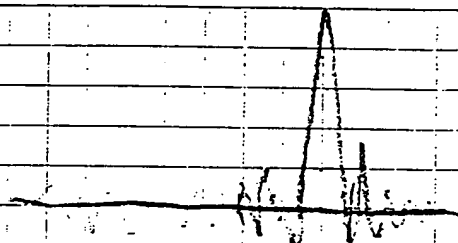
$u(t)$



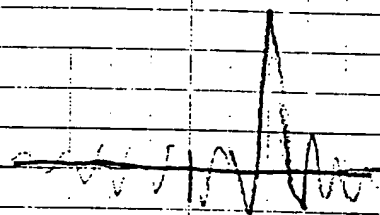
$u(a,6)$



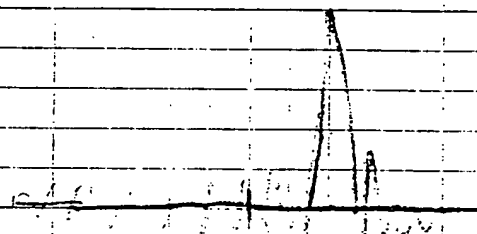
$u(a,2)$



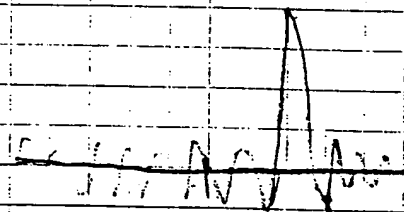
$u(a,7)$



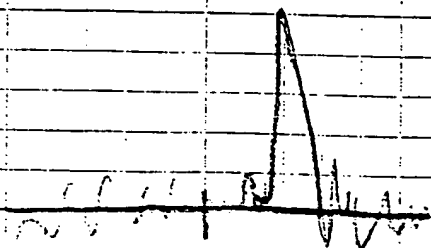
$u(a,3)$



$u(a,8)$



$u(a,4)$



$u(a,5)$

Fig 4c

002200-97333300

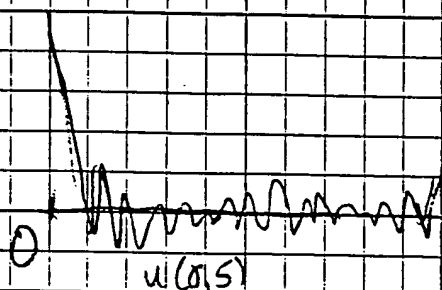
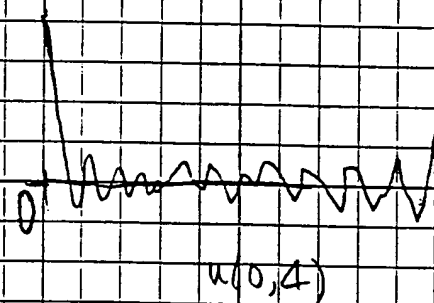
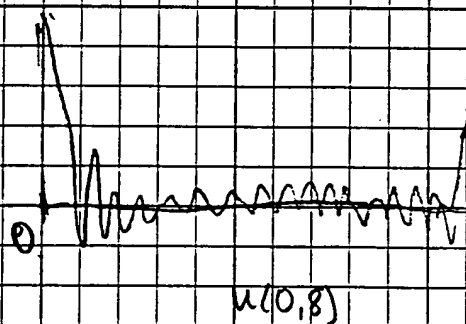
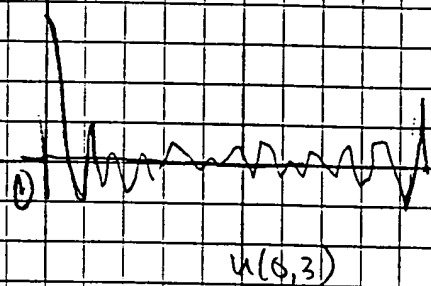
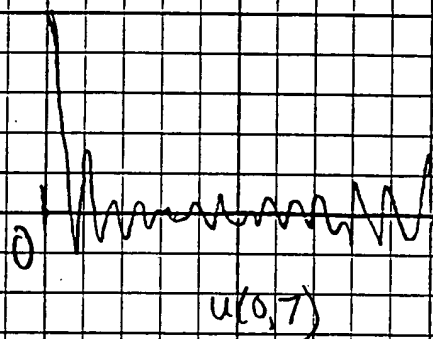
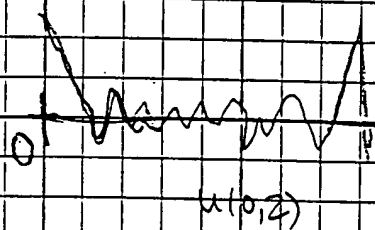
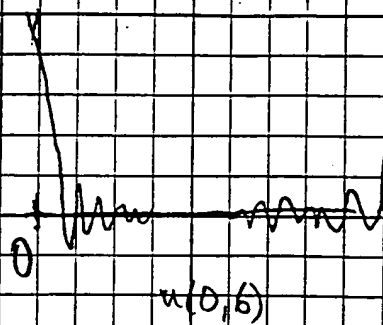
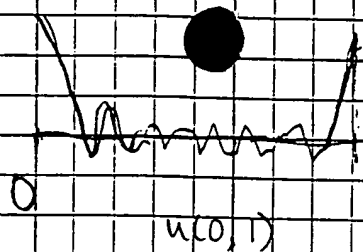


Fig. 4d

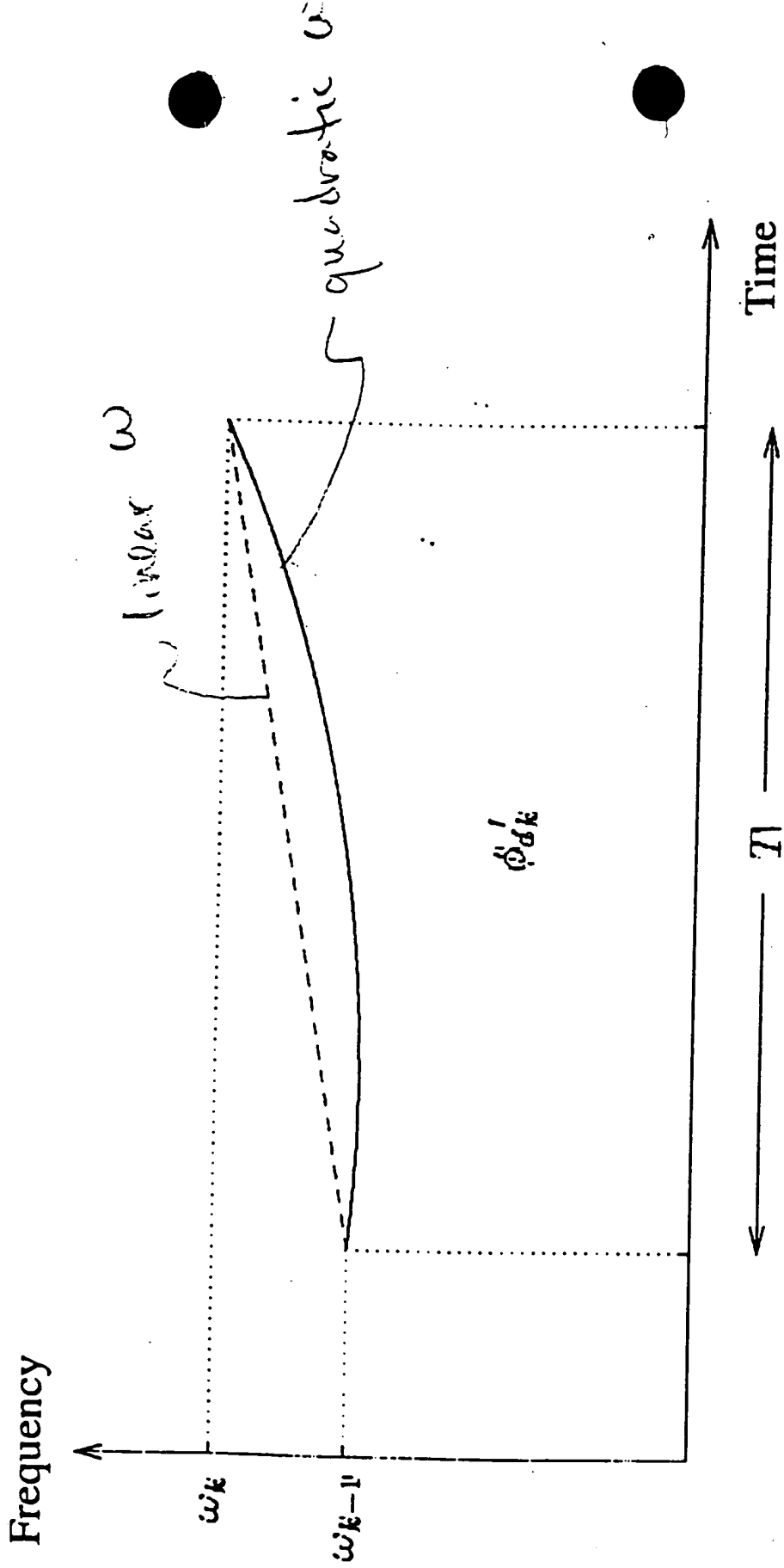


Fig. 5

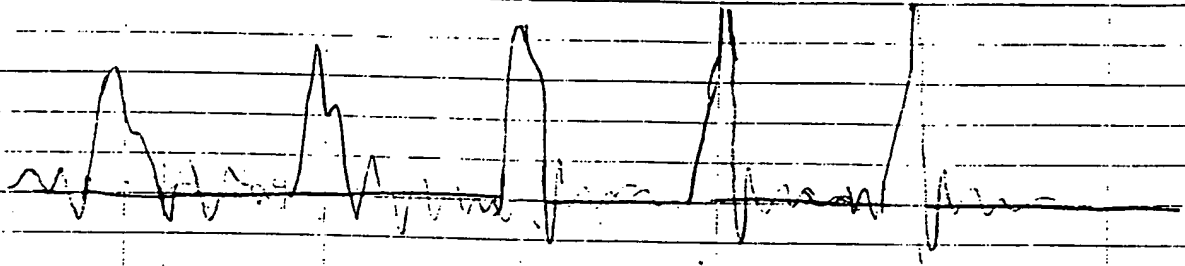


Fig. 6a

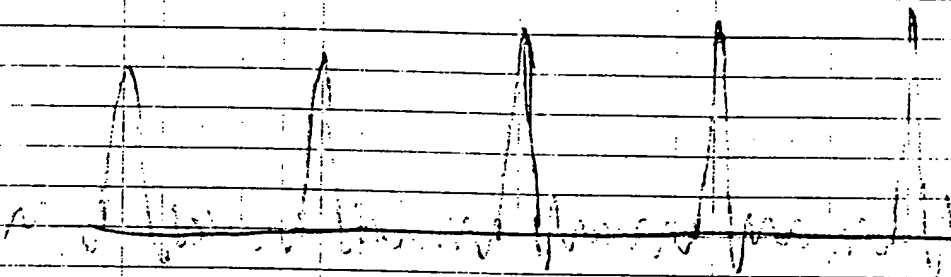


Fig. 6b

002200-51889900

